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Risk factors for self-reported delinquency in emerging adulthood

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Abstract

The goal of this study is to examine risk factors for delinquency in emerging adulthood, highlighting any differences between those generally found for adolescent delinquent behaviour. The importance of examining risk factors for this age group is discussed, given recent changes in the nature of the early adult years, and the fact that, although the majority of adolescent offenders desist during adulthood, there remain a high number of offenders in the early adult years. Risk effects for self-reported delinquency were examined in a general population sample of emerging adults (age 18–24). A range of risk factor measures, such as peer delinquency, need for autonomy, parental support and substance use, were used to predict reporting of at least one arrestable offence in a six-month period beginning a year later. In the full model, parental social support, alcohol use and a measure of self-control, aggression and criminal attitude all significantly predicted delinquency. We conclude that a good relationship with parents continues to be an important protective factor and that alcohol use continues to indicate problems with delinquency during emerging adulthood, similarly to during adolescence. These two factors are discussed as being suitable issues for interventions. We also discuss the theoretical implications of our findings.

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Keywords
Alcohol use, delinquency, emerging adulthood, parental support, risk factors

Introduction

There is a wealth of literature on the risk effects for delinquent behaviour in adolescence (for example, Green et al., 2008; Herrenkohl et al., 2000; Hill et al., 1999; Kolvin et al., 1999; Mulder et al., 2010; Van der Laan et al., 2010). These longitudinal studies generally follow individuals for an extended number of years, using risk factors from either childhood or early adolescence to predict delinquent behaviour later in adolescence. This focus on adolescence is understandable, since this is the age at which delinquent behaviour increases rapidly (Farrington et al., 2008). Given that the majority of offenders desist as they become adult, the analysis of risk effects for delinquent behaviour in early adulthood is justifiably less common. Yet for many young people the nature of the early years of adulthood has changed dramatically over recent decades. This time of life, labelled by developmental psychologists as '*emerging adulthood*', is now characterized by a delaying of traditional adult roles and increased freedom to explore and experiment (Arnett, 2015). These changes may lead to the continued relevance of risk factors associated with adolescent offending or the emergence of risk factors particular to this age group.

We explore this question using data from a longitudinal, prospective study on delinquency in emerging adulthood. Using a contemporary, general population, ethnically diverse, urban sample of 970 emerging adults living in the Netherlands, aged between 18 and 24 years, we examine possible risk factors for self-reported delinquency. Specifically, we research whether a range of factors all measured in emerging adulthood predict delinquent behaviour for a six-month period beginning one year later. Based on previous research (for example, Asscher et al., 2013; Elliott et al., 1996; Janssen et al., 2014; Loeber et al., 2007), risk factors were selected for their probable importance to the emerging adulthood period and the changes that may or may no longer occur as young people leave adolescence.

A shift to emerging adulthood

The lives of many of today's young adults living in the Western world look very different from those of previous generations (Côté and Bynner, 2008). Moffitt's argument for adolescents' delinquency motivation – that 'they remain financially and socially dependent on their family of origin' (1993, 687) – could just as well refer to many young people during the early years of emerging adulthood. Rather than progressing swiftly into the adult roles of marriage, parenthood and a stable job, young people today tend to delay these roles, or do not have access to them, until later in life. Owing to the increasing need for post-secondary educational qualifications, the majority of young people in West European countries spend at least some of their early adult years in education (Eurostat, 2014). In the Netherlands, the average age for getting married is now well into the thirties for both men and women and the average age of becoming a parent for first time is 29 for Dutch women and 32 for Dutch men (United Nations, 2016). Furthermore, the average age for leaving the parental home in the Netherlands is 23 years. These

demographic changes reflect the more subjective changes that researchers have found recent generations of young people associate with this time of life.

The early years of adulthood are now considered by many to be a time of freedom from responsibilities and commitments, of experimentation and exploration, and of instability (Arnett, 2015; Hill et al., 2015). In general, for those living in Western cultures, traditional markers of adulthood are deemed less important indicators of having achieved adult status than individualistic criteria, such as a having a sense of autonomy or establishing a relationship with parents as an equal (Shanahan et al., 2005). Emerging adults are not as bound by the responsibilities and commitments to others or to social institutions that earlier generations experienced. Previous work has found that some of these increased freedoms can increase the likelihood that emerging adults engage in delinquency (Blokland, 2014; Lustig and Liem, 2010).

However, a search of the risk effects literature reveals many studies that have examined which factors predict delinquent and antisocial behaviour in adolescence (Murray and Farrington, 2010). This focus on adolescents is understandable given the emergence and high rate of delinquent behaviour in this age group. Many theories address reasons for this prevalence of adolescent delinquency (for example, Moffitt, 1993; Warr, 1998). Moffitt (1993) makes the distinction between adolescence-limited offenders and life-course persistent offenders. She argues that adolescence-limited offenders are displaying behaviour normative for their age group. Namely, that the 'maturity gap', that is, the discrepancy between how adult adolescents feel and their social status, motivates the majority of adolescents to offend in an attempt to gain a more adult social status. Based on routine activity theory, Osgood and colleagues (1996) argue that much of adolescent offending is a result of situational factors arising from unstructured socializing. Warr (1998) argues that adolescent offending is explained by the influence of delinquent peers. Based on these theories explaining adolescent offending, we might expect the high prevalence of delinquent behaviour in adolescence to continue into young adulthood, given the changes in the nature of the early adult years.

Evidence from self-report studies on delinquency in young adulthood show that the prevalence of delinquency and crime does indeed remain high and even increases for this age group (Donker, 2004; Fagan and Western, 2005). Furthermore, age–crime curves based on official statistics do not generally show a return to early adolescent levels of offending until several years into adulthood (Loeber and Farrington, 2014; Piquero et al., 2002). Recent research from Scotland, for example, found the peak age of official offending statistics to have shifted to 22 years (Matthews, 2014). Nevertheless, although markers of adulthood have shifted, emerging adults' lives are different from those of adolescents. They clearly experience increased freedom and responsibilities for the self that come with being an adult. It is therefore important to examine which factors specific to emerging adulthood increase the risk that young people are involved in delinquent behaviour, as well as examining which risk factors for adolescent delinquency continue to be relevant during emerging adulthood.

Risk factors for delinquency in emerging adulthood

In this paper, we choose several possible risk factors to examine in our general population sample of Dutch emerging adults. Within the limits of the available data, we focus

on factors derived from theories and empirical research on adolescent delinquency that specifically relate to the changes that occur as people leave adolescence and enter adulthood, the relevance of which may have shifted given recent changes in the nature of the emerging adult years. We also consider arguably more stable antisocial tendency measures, such as self-control, to determine their predictive power above and beyond these other more dynamic factors, as well as looking at demographic characteristics and previous delinquent behaviour.

The negative influence of delinquent peers during adolescence has been widely demonstrated (Asscher et al., 2013; Haynie and Osgood, 2005; Weerman et al., 2015). However, we know that, as young people age into adulthood, the effect of delinquent peers gradually lessens (Monahan et al., 2009). Researchers argue that this is a consequence of spending less time in their company (Warr, 1998) or of a shift in routine activities away from unstructured socializing (Osgood et al., 1996). Studies have indeed found that delinquent peers are less of a risk factor explaining delinquent behaviour during adulthood (Stouthamer-Loeber et al., 2004). Monahan and colleagues (2009) find that by the age of 20 the negative effect of peers on delinquent behaviour disappears, as young adults become resistant to peers' influence. However, young people today increasingly spend their early adult years in education and not in full-time employment. Consequently, they remain in daily contact with same-age peers, and recent research carried out with a contemporary college student sample has found delinquent peers *are* a risk factor for persistent delinquency (Haffejee et al., 2013). Furthermore, present-day emerging adults are less likely to be exposed to the prosocial peer networks associated with employment, which have been found to contribute to the decreased risk of delinquent peers (Wright and Cullen, 2006). We therefore examine whether having delinquent peers increases the risk of delinquent behaviour during the early emerging adult years, similarly to in adolescence, or whether in our sample of young Dutch emerging adults their effect has also diminished, as several previous studies have found.

Living in a disadvantaged neighbourhood has been found to have a negative effect on adolescent delinquent behaviour (Elliott et al., 1996; Herrenkohl et al., 2012; Leventhal and Brooks-Gunn, 2003), with some studies finding the effect works indirectly through peer delinquency and/or parenting (Chung and Steinberg, 2006; Cuellar et al., 2015). However, not all studies find a negative effect for neighbourhood disadvantage in adolescence at the individual level (McBride Murry et al., 2011), and, studying an adult sample, Stouthamer-Loeber and colleagues (2004) found no effect of perceived neighbourhood disadvantage on persistent delinquency in young adulthood. We therefore examine whether our sample of emerging adults living in neighbourhoods across Amsterdam are similarly invulnerable to the negative effect of living in a disadvantaged neighbourhood.

The relationship between parents, parenting and delinquency during adolescence has been repeatedly examined and confirmed (Hoeve et al., 2009; Janssen et al., 2014). Poor family relations have often been identified as risk factors for adolescent antisocial behaviour (Farrington et al., 2008; Van der Laan et al., 2010). It might be expected, however, that, as young people become adults and gain more independence, relationships with parents become less predictive of youths' delinquent behaviour. Yet, as the nature of the early adult years has changed, so too has the nature of the parent–child relationship

during these years (Sanson and Wise, 2001). Warmth, responsiveness and control remain important features of successful parenting in emerging adulthood, as they are in adolescence (Nelson et al., 2011). A recent study has pointed to the continuing importance of parents for delinquency in emerging adulthood, with ongoing support associated with lower rates of young adult offending (Johnson et al., 2011). Schroeder and colleagues (2010) also found that having a strong relationship with parents predicted desistance in adult children. In this study, we therefore examine whether experiencing social support from parents protects emerging adults against delinquent behaviour during this time of life.

Another important risk factor for adolescent delinquency, notably identified in Moffitt's dual taxonomy theory (1993) and Agnew's general strain theory (1992), is adolescents' need for autonomy. During adolescence young people feel adult but are not yet accorded the freedoms associated with adulthood. This mismatch encourages delinquency as a means to attain a sense of autonomy (according to Moffitt) or to cope with the strain of not having the desired autonomy (according to Agnew). Empirical research has indeed found an association between the need for autonomy and delinquency in adolescence (Brezina, 2008; Chen, 2010; Galambos et al., 2003). The importance of this risk factor is, for most young people, likely to diminish as young people transition out of adolescence and increasingly experience the privileges and freedoms of adulthood. However, given the changed nature of the early adult years, such as increased length of time spent in education or prolonged financial dependence on parents owing to education and/or unstable employment (Schoeni and Ross, 2005), for modern-day emerging adults the need for autonomy may continue to represent an important risk factor for delinquent behaviour in emerging adulthood.

Substance use is generally considered to be a risky behaviour and it is frequently associated with delinquent behaviour during adolescence (Assink et al., 2015). However, alcohol use for adults is legal, as is, in the Netherlands, the recreational use of marijuana. Furthermore, substance use peaks during the emerging adult years (Arnett, 2015), indicating wider prevalence and greater acceptance. One might therefore expect the relationship between substance use and delinquency to weaken during this period of life. However, previous research in the USA has found that weekly marijuana and heavy alcohol use continue to be associated with delinquency during the early adult years (Loeber et al., 2007). We explore whether this is also true for our sample of Dutch emerging adults.

In addition to the possible risk factors outlined above, we also examine more general measures found to predict delinquent behaviour across the life course, namely self-control, aggression and criminal attitude. The relationship between low self-control and delinquent behaviour is prominent in criminology (Gottfredson and Hirschi, 1990), and its predictive power has been demonstrated across all ages (Pratt, 2015; Pratt and Cullen, 2000). Similarly, aggression and delinquency often go hand in hand (Loeber and Hay, 1997). Measures of trait aggression have been identified as a risk factor for delinquent behaviour in adolescence (Assink et al., 2015) and adulthood (Pulkkinen et al., 2009). Likewise, a criminal attitude is a strong predictor of delinquent behaviour throughout the life course (Mills, Kroner, and Hemmati, 2004; Walters, 2012), reflecting an individual's thoughts, intentions and norms concerning criminal behaviour (Loeber and Hay, 1997).

We include these constructs in our study largely to test whether the other risk factors named above continue to have predictive power above and beyond these three strong predictors of delinquency. The influence of the above factors may change as young people age into adulthood – although, as we posit for emerging adults, this might not yet be true – but the relationship between low self-control, aggression, criminal attitude and delinquency is unlikely to diminish; hence their importance in any examination of risk factors for delinquency.

All of the above risk factors are theoretically dynamic, that is, they can change over time. We also include several static risk factors, that is, factors that cannot change, in our models. These are gender, ethnicity (namely Dutch-Moroccan and Dutch-Caribbean) and previous delinquent behaviour. Males are typically found to be over-represented in crime and delinquency statistics compared with females. In the Netherlands, both Dutch-Moroccan and Dutch-Caribbean youths are over-represented in official crime statistics during the adolescent years (Blokland et al., 2010; Jennissen, 2009) Finally, adolescent delinquent behaviour is consistently one of the best predictors of adult criminal behaviour (Rhoades et al., 2016) and is therefore included as an important control variable.

Method

Respondents

Data are from the Transitions in Amsterdam Study, a prospective longitudinal study of emerging adults living in Amsterdam, the Netherlands, carried out by the Netherlands Institute for the Study of Crime and Law Enforcement (NSCR) between 2010 and 2014 (Blokland, 2014). Respondents for the study were emerging adults of Dutch, Dutch-Moroccan and Dutch-Caribbean descent, operationalized as having two parents born in the Netherlands (Dutch) or at least one parent born in Morocco or the Dutch-Caribbean. Respondents were randomly selected from the municipal registry for Amsterdam, with an oversampling of Dutch-Moroccan and Dutch-Caribbean ethnicities and of young people with a police record before their 17th birthday.[1] Equal proportions of males and females were selected. Potential respondents were first contacted by mail, followed by home visits. Of the 3408 reached, 970 (28 percent) agreed to participate and completed the first interview. Sampled respondents came from all seven of Amsterdam's city districts and from 84 of 89 possible neighbourhoods, excluding only some very small neighbourhoods (neighbourhood population < 2000). Comparing the final sample with the total population of Dutch, Dutch-Moroccan and Dutch-Caribbean emerging adults in Amsterdam, 10.0 percent of the total population had a police record prior to age 18 compared with 18.1 percent of the final sample. The limited information available therefore suggests that the project succeeded in its aim to gather a representative sample of emerging adults, with a deliberate oversampling of those of with previous police records. Of the final sample, 414 (43 percent) were of Dutch descent, 367 (39 percent) were of Moroccan descent and 181 (19 percent) were of Dutch-Caribbean descent; 527 (54 percent) were female. All analyses were weighted by gender, ethnicity and adolescent police record to ensure our sample was representative of the Amsterdam population for this cohort and therefore our findings are generalizable to the general population of emerging

adults. Four waves of interviews were carried out at roughly six-month intervals. The data used in this study are taken from the first and fourth interview waves, with risk factors measured in wave 1 used to predict delinquency measured in wave 4, controlling for delinquency measured in wave 1. In this way, we could be sure that the risk factors temporally preceded the delinquent behaviour they were predicting. There was on average an interval of 20 months between the first and fourth interview (SD = 2.4). Average respondent age at wave 1 was 20 years (SD = 1.35).

Measures

Delinquent peers. Respondents reported whether any of their five closest friends had, to their knowledge, committed a criminal offence. For each friend a score of 1 indicated one or two offences, a score of 2 indicated more than two offences. Scores for all five friends were summed. The variable scores ranged from 0 to 9; 103 respondents reported that at least one of their five closest friends had committed at least one offence.

Neighbourhood. During wave 1 interviews, respondents reported their street name and neighbourhood. The municipal area of Amsterdam is split into 99 neighbourhoods, of which 89 are residential. In order to calculate a measure of neighbourhood socioeconomic status (SES) for each of these a factor analysis was carried out on three variables retrieved from the Dutch Bureau of Statistics (CBS) data for all residential neighbourhoods in Amsterdam in 2013. These variables – proportion of the population from ethnic minorities, proportion of the population receiving welfare payments and the proportion of households with an annual income lower than €18,000 – all loaded onto one factor. Factor scores were saved as a variable indicating neighbourhood SES, where a higher score indicates lower SES, that is, more disadvantage. Factor scores ranged from −0.07 to 0.33 (M = 0.14, SD = 0.08).

Parental social support. Respondents completed the Multidimensional Scale of Perceived Social Support (Zimet et al., 1988). A sum variable was made from the four items relating to family (Cronbach's alpha: .90). This included the items 'my family really tries to help me' and 'I can talk to my family about my problems'. Scores on this variable ranged from 1 to 6 (M = 5.58, SD = 1.07).

Substance use. Respondents indicated, on average, how often in the previous year they had had five drinks or more in one session. Scores ranged from 0 (never) to five (near daily) (M = 1.17, SD = 1.3) and 37 percent of respondents reported drinking five drinks or more at least once a month. Respondents were asked to list up to five drugs they had used in the past year, and how often they had done so, ranging from 1 (less than once a month) to five (near daily). Drugs listed included marijuana (decriminalized in the Netherlands), illegal drugs such as cocaine, as well as legal highs such as magic mushrooms and laughing gas. Scores ranged from 0 to 15 (M = 1.22, SD = 2.1).

Need for autonomy. Respondents completed the Need for Autonomy scale (Agnew, 1984). A sum variable was made from the five items (Cronbach's alpha: .66). Examples

of the five items include 'I demand freedom and independence above all else' and 'I like to be on my own and be my own boss'. Answers ranged from 1 (strongly disagree) to 5 (strongly agree) (M = 3.57, SD = 0.6).

Self-control, aggression, criminal attitude. Respondents completed the Grasmick self-control scale (Grasmick et al., 1993). Examples of the 24 items are 'I often act on the spur of the moment' and 'sometimes I will take a risk just for the fun of it'. Answers ranged from 1 (strongly disagree) to 4 (strongly agree). Respondents completed the Aggression Questionnaire (Buss and Perry, 1992). Examples of the 29 items are 'I am sometimes eaten up with jealousy' and 'if somebody hits me I hit them back'. Answers ranged from 1 (extremely unlike me) to 5 (extremely like me). Respondents completed the Measures of Criminal Attitudes and Associates questionnaire (Mills et al., 2002). Examples of the 25 items are 'stealing to survive is understandable' and 'I would be happy to fool the police'. Answers ranged from 1 (strongly disagree) to 5 (strongly agree). Cronbach's alpha's for these scales were acceptable: .83, .91 and .86. These three scales were strongly correlated (.44–.52), suggesting that, in a regression model, multicollinearity might be an issue. We therefore decided to run a factor analysis on all the scale items, extract one factor and use the saved factor score as a variable 'antisocial tendency', indicating self-control, aggression and criminal attitude. The factor score was normally distributed and scores ranged from −2.11 to 5.75.

Static factors. Gender (54 percent female), dummy variables for ethnicity (38 percent Dutch-Moroccan, 19 percent Dutch-Caribbean) and a dichotomous variable indicating a police record prior to age 17 years ($N = 187$) were included in all models as control variables. Age (wave 1: M = 20, SD = 1.35) was also included in all models.

Delinquency

At each interview wave, respondents indicated whether they had committed any of 48 offences during the previous six-month period and, if so, how many times they had committed the offence. The delinquency scale was adapted from the Self-Reported Delinquency study (Junger-Tas et al., 1994) and the South Holland study (Hofstra et al., 2001). From the 48 self-reported offences, we created a dichotomous measure indicating respondents who had reported committing at least one arrestable offence; [2] 30 of the original 48 offences were arrestable offences. See Table 4 in Appendix A for offence frequencies. Self-reported delinquency from wave 4 interviews was used as a dependent variable in our analyses. Self-reported delinquency from wave 1 interviews was added in a final model as a control variable.

Missing data

The rate of participation at the fourth interview wave, from which our delinquency measure is taken, was 70 percent. In order to include the entire sample and to avoid possible bias that would result from complete case analysis, missing values on the delinquency measure from wave 4 were imputed, using a multiple imputation technique carried out in

Table 1. Descriptive details of sample.

	Wave 1 *N* = 970	Wave 4 *N* = 693
Sex	527 (54%) female	405 (58%) female
Age (years)	M = 20; SD = 1.44 min. 17, max. 23	M = 21.6; SD = 1.37 min. 19, max. 24
Ethnicity	Dutch = 414 (43%) Moroccan = 367 (39%) Dutch-Caribbean = 181 (19%)	Dutch = 350 (51%) Moroccan = 210 (30%) Dutch-Caribbean = 130 (19%)
SES	M = 1.19; SD = 0.86 Low *N* = 277 Medium *N* = 206 High *N* = 450 (missing *N* = 37)	M = 2.25; SD = 0.84 Low *N* = 167 Medium *N* = 129 High *N* = 377 (missing *N* = 20)
Police contact <18 yrs	*N* = 176 (18.1%)	*N* = 108 (15.6%)
Self-reported delinquency (imputed at wave 4)	M = 1.62; SD = 2.9 37% ≥ 1 offence	M = 1.29; SD = 2.72 41% ≥ 1 offence

R. Scores on the 48 original offences were imputed using previously reported delinquency, as well as demographic variables, such as gender, and a number of psychological measures. Five imputed datasets were created, which were used for the analyses where self-reported delinquency is the dependent variable. See Appendix B for more details on the imputation procedure. The results presented are the pooled results from analyses carried out on each of the five datasets.[3]

Results

Table 1 provides descriptive details of the sample. Besides the demographic details of the sample, we can see that over one-third of participants reported committing at least one delinquent offence in the previous six-month period at wave 1 and wave 4. Table 2 shows the bivariate correlations between all variables included in the analyses. Correlations larger than .3 are reported in the text. Native Dutch ethnicity was negatively correlated with low neighbourhood SES (−.36) and Dutch-Caribbean ethnicity was positively correlated with low neighbourhood SES (.39). Native Dutch ethnicity was positively correlated with alcohol use (.55) and Dutch-Moroccan ethnicity was negatively correlated with alcohol use (−.53). Alcohol and drug use were positively correlated (.42), the need for autonomy and the antisocial tendency measure were positively correlated (.37), and self-reported delinquency and antisocial tendency were positively correlated (.34). Despite these moderately high correlations between variables, the results of our test for multicollinearity indicated this was not an issue: tolerance statistics were all well above .2 (.54–.92) and variance inflation factors were all well below 5 (1.11–1.86). The weighted and pooled data from five imputed datasets show that 211 respondents (22 percent) reported committing at least one of the arrestable offences in the six-month period prior to the fourth interview.[4]

Table 2. Bivariate correlations between all variables.

	1	2	3	4	5	6	7	8	9	10	11	12	13
1 Gender	–												
2 Age	.07*	–											
3 Dutch	.03	−.09**	–										
4 Dutch-Moroccan	.01	.02	−.67***	–									
5 Dutch-Caribbean	−.05	.08*	−.41***	−.37***	–								
6 Police record adolescent	.22***	.08*	−.19***	.13***	.07*	–							
7 Delinquent friends	.16***	.06	.002	−.03	.03	.06	–						
8 Neighbourhood SES	−.03	.03	−.36***	.06	.39***	.1**	.004	–					
9 Parental social support	−.07*	−.02	.17***	−.12***	−.05	−.08**	−.08*	−.11**	–				
10 Need for autonomy	0.8*	0.4	−.19***	.14***	.07*	.13***	.12***	.1**	−.1**	–			
11 Alcohol use	.19***	.06	.55***	−.53***	−.04	.01	.1**	−.24***	.07*	−.06*	–		
12 Drug use	.22***	.09**	.23***	−.21***	.03	.06	.18***	−.16***	−.1**	.1**	.42***	–	
13 Antisocial tendency	.28***	−.07*	−.12***	.01	.14***	.22***	.25***	.13***	−.24***	.37***	.14***	.29***	–
14 Self-report delinquency	.19***	−.02	.06	−.1**	.04	.11**	.17**	0	−.11**	.11**	.24**	.26**	.34**

*$p < .05$, **$p < .01$, ***$p < .001$.

We first ran a series of hierarchical logistic regression models with self-reported delinquency as the dependent variable. After running a model with demographic and background variables, we chose to add the dynamic risk factors relevant to adolescence and/or emerging adulthood to the next model. Then we added our measure of antisocial tendency, before running a final model controlling for self-reported delinquency from wave 4, to see if any of the risk factors had explanatory power over and above previous delinquent behaviour. We used the Stata command *khb* in order to correctly compare the results of our nested non-linear models (Karlson et al., 2010; Kohler et al., 2011). The results in odds ratios are shown in Table 3.

From Model 1, which includes only background controls, we can see that, as expected, being male more than doubled the likelihood of reporting an arrestable offence, and having an adolescent police record nearly doubled this likelihood. Contrary to expectations, however, Dutch-Moroccan ethnicity was a protective factor in our data: Dutch-Moroccans were more than 40 percent less likely to report committing an arrestable offence than the Dutch and Dutch-Caribbean emerging adults in our sample.

In Model 2 we see that parental social support was a significant protective factor: For every one-point increase in parental social support, the likelihood of delinquency decreased by 22 percent. In addition, alcohol use significantly predicted delinquency. Every one-point increase in the alcohol measure increased the likelihood of reporting delinquency by over 50 percent. When these variables were added to the model, adolescent police record and Dutch-Moroccan ethnicity were no longer significant predictors of delinquency.

In Model 3 we see that, for every one-point increase in the antisocial tendency score, the likelihood of a participant reporting delinquency more than doubled. When the antisocial tendency variable was added, gender was no longer a significant predictor. In this model, parental social support remained a significant protective factor (OR = 0.82) and alcohol use remained a significant risk factor (OR = 1.50).

In the final model (Model 4) we added a dichotomous measure for self-reported delinquency in wave 1 to examine which effects remained controlling for this. Delinquency at wave 1 was a very strong predictor of delinquency at wave 4 (OR = 4.74). The effect of parental social support remained a significant protective factor (OR = 0.83), and the effect of alcohol use (OR = 1.34) and the antisocial tendency measure (OR = 1.79) remained significant risk factors for delinquency at wave 4, controlling for previous delinquency reported at wave 1.[5]

Discussion

The current study aimed to examine a number of risk factors for delinquency in emerging adulthood, using a general population sample of Dutch emerging adults. We tested several risk factors whose relevance is generally considered to shift as young people move out of adolescence into adulthood, as well as risk factors known to predict delinquency throughout the life course, and a series of demographic controls. We examined whether these factors predicted self-reported arrestable offences in a six-month period beginning a year after measurement of the risk factors.

Table 3. Logistic regression models with self-reported delinquency as dependent variable.

	Model 1	Model 2	Model 3	Model 4
	OR (CI)	OR (CI)	OR (CI)	OR (CI)
Gender	2.433*** (1.737–3.404)	1.709** (1.155–2.532)	1.370 (0.899–2.090)	1.318 (0.827–2.098)
Age	0.957 (0.840–1.091)	0.896 (0.772–1.040)	0.952 (0.815–1.112)	0.952 (0.807–1.124)
Dutch-Moroccan	0.540** (0.408–0.782)	1.291 (0.694–2.401)	1.073 (0.580–1.984)	1.278 (0.685–2.385)
Dutch-Caribbean	0.914 (0.579–1.441)	1.189 (0.618–2.289)	0.903 (0.461–1.770)	1.049 (0.525–2.096)
Adolescent police record	1.429** (0.112–0.603)	1.250 (0.928–1.684)	1.112 (0.820–1.507)	1.209 (0.891–1.642)
Delinquent friends		1.264 † (0.987–1.618)	1.104 (0.855–1.428)	0.987 (0.769–1.267)
Neighbourhood SES		1.716 (0.300–74.143)	1.815 (0.097– 33.818)	1.992 (0.088–45.060)
Parental social support		0.781** (0.668–0.913)	0.815* (0.691–0.960)	0.825* (0.701–0.981)
Need for autonomy		1.327 (0.940–1.874)	0.979 (0.669–1.433)	0.981 (0.649–1.483)
Alcohol use		1.576 *** (1.249–1.990)	1.498 ** (1.179–1.904)	1.335 * (1.024–1.738)
Drug use		1.096 † (0.998–1.203)	1.050 (0.955–1.154)	1.025 (0.923–1.139)
Antisocial tendency			2.028 *** (1.519–2.423)	1.793 ** (1.306–2.46)
Delinquency wave 1				4.740 *** (2.683–9.161)
Intercept	0.487	0.888	0.923	0.578

Notes: OR = odds ratio; CI = Confidence Interval.
†$p < .1$, *$p<.05$, **$p < .01$, ***$p < .001$.

Our measure of antisocial tendency, indicating low self-control, aggression and criminal attitudes, increased the likelihood that Dutch emerging adults would report delinquent behaviour. These results suggest, unsurprisingly, that having low self-control, being aggressive and having a criminal attitude are all robust and strong risk factors for delinquency in emerging adulthood and are in line with previous research (Assink et al., 2015). Furthermore, delinquency measured at wave 1 was a strong predictor of delinquency measured at wave 4, suggesting a continuation of offending behaviour throughout the period of the study. Next, we turn to the risk factors whose relevance we particularly wanted to explore given changes to the early adult years.

We speculated in the Introduction that having delinquent peers, although previously found not to be a risk factor during adulthood, might, given changes in the nature of the early adult years, continue to increase the risk of delinquent behaviour in emerging adulthood, particularly in the early years. This appeared not to be supported by our results: having delinquent peers did not significantly increase the likelihood that our respondents would engage in delinquency. This may partly be due to the surprisingly low prevalence of peer delinquency: 11 percent of respondents reported peer delinquency, whereas 22 percent self-reported delinquency. It is possible that less serious offences committed by peers were underreported. Alternatively, this finding suggests that, during emerging adulthood, despite the changing nature of these years, with large numbers of young people spending extended time with peers in the educational setting and delaying settling down with a partner and starting a family, the peer group has less influence on delinquency than during adolescence.

We also did not find an effect of living in a disadvantaged neighbourhood on delinquent behaviour. It is hard to come to conclusions as to why we found no effect. It is possible that the non-effect was due to our sample having transitioned into emerging adulthood; that is, they were no longer adolescents and susceptible to the bad influence that living in a disadvantaged neighbourhood may have, as previous research has found (Stouthamer-Loeber et al., 2004). On the other hand, it is also possible that the non-effect is peculiar to characteristics of Dutch neighbourhoods, in particular those in Amsterdam. Much of the work on the delinquent effect of neighbourhoods has been carried out in the USA. It is possible that, although urban areas in the Netherlands are clearly not homogeneous, the extremes evident in the USA are not seen in the Netherlands.[6] Another point to consider is that Amsterdam is a small city with an extensive public transport network, allowing high mobility between neighbourhoods. Consequently, young people from more disadvantaged neighbourhoods may be able to escape the negative influences of their residential neighbourhood. Furthermore, we measured neighbourhood disadvantage for the neighbourhoods in which our respondents live, rather than where they spend most of their time. Studies with adolescents have found that they spend many hours a day outside of their residential area (Basta et al., 2010). Furthermore, Hoeben (2016) has found that, for adolescents, disadvantage in neighbourhoods where they spend their time is predictive of delinquency, whereas disadvantage in residential neighbourhoods is not. Examining the neighbourhoods where emerging adults spend their time is therefore necessary, and further longitudinal research following Dutch young people from adolescence into adulthood is needed to clarify the reasons for our non-effect of neighbourhood SES.

Parental social support, as per our hypothesis, proved to be a relevant and robust factor for emerging adulthood delinquency. For our self-report measure of arrestable

offences, in the full model, reporting more parental social support decreased the likelihood of engaging in delinquency. This finding is in line with several other studies. Walters (2013) found that, for females, parental involvement entirely explained the relationship between involvement in delinquency as an adolescent and criminal behaviour as an emerging adult. Similarly Harris-McCoy and Cui (2013) found that parental control measured in adolescence predicted criminal behaviour in young adulthood. The findings from our study indicate that the importance of parental behaviour extends into their interactions with their children during the early adult years. This has been found for other antisocial behaviour. For example, research on emerging adult alcohol use has also found that maternal warmth had a protective factor in a longitudinal study (Cleveland et al., 2014). This highlights the continued significance of the parent–child relationship in predicting delinquency in the early adult years and suggests that further research, with practitioners in the field, would be useful to examine whether parental support is actually, not just theoretically, dynamic. Our findings also indicate the importance of identifying those emerging adults who lack supportive parents. This puts them at a disadvantage not only during adolescence but also during the early adult years and may result in them dropping even further behind their peers in terms of making a successful transition to adulthood.

A need for autonomy did not significantly predict delinquency. Alcohol use, in contrast, was a risk factor for emerging adulthood delinquency, remaining significant in the full model. We speculated that this might no longer have been the case in emerging adulthood as it is in adolescence, given the prevailing social norms and practice of adult drinking. Nevertheless, it seems that alcohol use remains an indication of problem behaviour, and one that would certainly appear suitable for interventions in the field. It remains to be seen whether this finding generalizes to emerging adult populations in other countries with different attitudes and norms regarding young adult drinking. Whether the finding that drug use does not act as a risk factor in this sample is generalizable to other countries is also debateable. It seems plausible that findings from the Netherlands, with its more relaxed approach to drug use, might not be replicated in other countries.

Another notable finding of our study was that ethnicity was not a risk factor for delinquency, and that, in the model with just demographic variables, being Dutch-Moroccan was even a protective factor. The correlation between an adolescent police record and Dutch-Moroccan ethnicity was, however, positive and significant, indicating that this effect is not a result of a particularly non-delinquent sample of Dutch-Moroccans taking part in the study. Self-report studies in other countries have also found that ethnicity is not a risk factor for delinquency, whereas official statistics suggest it is (Junger-Tas et al., 1994; Tonry, 1997). It is possible that our sample of Dutch-Moroccans desist from their adolescent delinquent ways as they reach adulthood, a possibility that previous studies on this group suggest likely (Jennissen, 2009). If this were the case, we could conclude that having a Dutch-Moroccan ethnicity may be a protective factor for delinquency during emerging adulthood.

In addition to the ethnic differences, the effect of gender on self-reported delinquency fell away in the full model, suggesting that self-reported delinquent behaviour by females is higher than we might expect. Age is also not predictive of criminal behaviour, suggesting that older emerging adults (our sample ranged in age at wave 4 20–24 years) are as

likely as younger emerging adults to report delinquency. These findings indicate that delinquency among native Dutch, among females and among older emerging adults is higher than official criminal justice statistics would suggest.

Two possible explanations for these results regarding Dutch-Moroccans and females are selectivity in police practices and the nature of the self-report measure itself. These explanations are not mutually exclusive. As already mentioned, self-report studies are generally skewed towards less serious delinquency (Junger-Tas and Marshall, 1999). Serious offences are more likely to be detected by the police, taken more seriously by the police or reported to the police, explaining this skew. This would mean that, for example, females are as likely as males to commit less serious delinquency but less likely than males to commit serious delinquency. This explanation has in the past also been put forward to explain discrepancies between self-report and official crime statistics on ethnic minorities, that is, that ethnic differences do not exist for minor delinquency, but exist only for serious delinquency (Junger-Tas and Marshall, 1999; Siennick and Osgood, 2008). However, in 1989 Junger also found a discrepancy in self-reports of official police contacts, with ethnic minorities under-reporting their police contacts (Junger, 1989). If this is also true of our data, the protective effect of being a Dutch-Moroccan could be an artefact of their under-reporting their offending behaviour, and not a reflection of reality. In fact, being Dutch-Moroccan was associated with a higher likelihood of having an adolescent police record. This indicates that it is unlikely that our sample contains only non-delinquent Dutch-Moroccans. Possible solutions to the suggested lack of validity of the self-report measure are using both self-report and official criminal justice system statistics as the outcome measure – an area for future research – as well as employing a within-person analysis approach. If under-reporting occurs systematically, looking at change within individuals can still inform us about what predicts changes in delinquent behaviour for all ethnicities.

Strengths and limitations

One of the strengths of our study was the use of self-reported delinquency, measured longitudinally. Much of the literature on adult offending relies on official conviction statistics, which inevitably underestimate offending. On the other hand, as Junger-Tas and Marshall (1999) point out, self-report studies are generally skewed towards less serious delinquency. Although we tried to mitigate this somewhat by using a score of arrestable offences, this inevitably remains true. Looking at the frequencies of the different offences reported (Table 4 in Appendix A), the three most prevalent offences were driving under the influence of alcohol ($N = 71$) or under the influence of drugs ($N = 44$), and selling party drugs, such as ecstasy or magic mushrooms ($N = 40$). This suggests that the majority of offenders were committing substance misuse offences rather than more serious criminal or violent offences. Although these offences do have the potential to cause grave personal harm, as well as injury to others, we have to question whether the risk factors we have found would also be applicable to more serious offenders.

This issue of substance use is also of importance when we consider the generalizability of our findings. The Netherlands has a famously relaxed approach to soft drug use, as well as a drinking culture that, although not dissimilar to that in other West and

North European countries, might have contributed to our results. Firstly, as mentioned above, many of the delinquent acts by our respondents were related to substance use, demonstrating their wide use. In other countries, the pattern of delinquent behaviour is likely to look different, and therefore risk and protective factors are also likely to be different. Secondly, we found heavy alcohol use to be a risk factor. In countries where alcohol use is less accepted or widespread this might not be the case. Future research on the risk factors for delinquency in emerging adults in other countries is therefore needed.

A further strength was that we have a non-adolescent sample. Much of the risk factor literature using self-reported delinquency has been carried out on convenience samples of school-attending adolescents. As we highlighted in the Introduction, early adult delinquency remains a problem and, as Cullen (2011) has pointed out, delinquent behaviour for groups other than adolescents should not be ignored.

The use of self-reported delinquency, although providing a foil to much of the risk factor research carried out on adolescents, does have its limitations as mentioned above: the possible under-reporting of delinquency by certain groups. In addition to this limitation, in this study we have several times described our risk factors as dynamic. However, as Serin and colleagues (Serin et al., 2015) point out, in order to call a factor dynamic one needs to demonstrate that it does actually change over time. One way to do this is to examine within-person changes in, for example, alcohol use and relate these to changes in delinquent behaviour. This is certainly an important area for future research on delinquent behaviour in emerging adulthood.

Despite these limitations, we believe that examining risk factors for delinquency in the way we have done here remains a useful exercise. Firstly, our findings raise theoretical questions. For example, life-course and developmental theories of delinquency, notably Moffitt's dual taxonomy (1993), suggest that less serious delinquency and antisocial behaviour are limited to adolescence, with young people maturing out of this as they enter adulthood. Given our use of a general population sample, we can assume that the majority of the delinquents in our study are not the more serious or chronic offenders. Yet we have demonstrated not only that delinquent behaviour is prevalent during this time of life, but also that some of the factors that predict adolescent delinquency continue to predict emerging adult delinquency. Identifying factors that distinguish individuals who have a higher likelihood of engaging in delinquency during emerging adulthood may help in recognizing those individuals in danger of becoming 'ensnared' (McGee et al., 2015; Moffitt et al., 2002) in a protracted pattern of delinquent behaviour. This information is of particular interest to practitioners designing interventions for young people at risk of delinquency. On the basis of our results, we have learnt that parental relations and alcohol use during emerging adulthood are areas on which these interventions could focus.

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Notes

1. These two ethnicities are the most over-represented in the crime figures in The Netherlands, hence their oversampling in the study (Blokland et al., 2010).
2. These are offences for which an individual can be detained under Dutch law. The wording of several offences in the self-report questionnaire provided two options, for which one was arrestable, the other not; these offences were not included in the arrestable offence measure.
3. Exactly the same analyses were also run on non-imputed data to examine any potential differences in the results between the two.
4. In the non-imputed data, 145 (21 percent) of respondents reported committing an arrestable offence.
5. Results of analyses run on non-imputed data were very similar to those of the pooled results on imputed data. The differences were that in Model 3 the effect of alcohol use and antisocial tendency, although remaining significant, was slightly stronger and that of parental social support slightly weaker than in the model run on imputed data.
6. As a rough comparison, average household income for Amsterdam neighbourhoods in 2008 ranged from €18,400 to €54,000 and the average for the city was €30,700 (CBS, 2016); in Chicago, in contrast, median household income ranged from $16,430 to 109,419 and the median for the city was $46,195 (City Data, 2016). In Amsterdam, the lowest average neighbourhood income is 60 percent of the overall average; in Chicago, the lowest median neighbourhood income is 36 percent of the overall median. Comparing average and median incomes is not ideal. However, in the absence of directly comparable statistics, we feel that this comparison is illustrative.

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Appendix A

Table 4. List of 30 delinquent acts for which an adult can be arrested under Dutch law (*N*).

1	Steal something from a shop that is worth less than €10 (39)
2	Steal something from a shop that is worth more than €10 (17)
3	Steal a bicycle, moped or scooter (21)
4	Steal a motorbike (7)
5	Steal something out of a car, for example clothes, radio, telephone or other items (3)
6	Break into a parking meter or other machine to steal something, for example money, candy, drink or other item (7)
7	Break into a property with the purpose of stealing something, for example a house, building site or somewhere else (2)
8	Pick pockets (8)
9	Steal something in another way, for example from a changing room, in the train or somewhere else (16)
10	Purposely provide false information on your tax declaration (15)
11	Purposely provide false information concerning welfare payments (9)
12	Purposely conceal or give false information to an insurance company, for example for travel or household insurance (8)
13	Use violence in order to steal something from someone (6)
14	Hit and/or kick someone on purpose without, according to you, wounding them (36)
15	Hit and/or kick someone on purpose and wound them (22)
16	Threaten someone in order to have sex with them against their will (6)
17	Have sex or try to have sex with someone against their will (4)
18	Carry a weapon (35)
19	Hurt or wound someone with a weapon (4)
20	Take part in a riot or group fight in a public place, such as a football stadium, music festival or other public space (31)
21	Sell soft drugs, for example weed or hash (21)
22	Sell party drugs, for example speed, XTC or magic mushrooms (40)
23	Sell hard drugs, for example heroin, crack, cocaine (7)
24	Ride a scooter, moped, car or motorbike under the influence of drink (71)
25	Ride a scooter, moped, car or motorbike under the influence of drugs (44)
26	Help someone else to commit a crime, for example by keeping watch during a break-in or not locking up business facilities (4)
27	Steal something from someone that is worth less than €10 (10)
28	Steal something from someone that is worth more than €10 (14)
29	Defraud your employer, for example by wrongly claiming expenses or transferring money to your account (13)
30	Give civil servants, officials or other people money or something else, in order that your employer receives an advantage, for example to escape a fine or inspection or to receive a permit or commission (0)

Appendix B

In order to deal with missing data due to attrition, a multiple imputation technique was used. This method was chosen over methods such as listwise deletion, which can lead to biased estimates unless the unlikely assumption of missing completely at random (MCAR) is met. Little's MCAR test was significant, indicating that there was a pattern to the missingness, that is the attrition in our dataset. Examining the reasons for this more closely, indicated that attrition was related to sex, ethnicity and several individual differences, including self-control and aggression, but not to delinquency reported in the wave 1 interview, delinquent friends, childhood conduct disorder and other individual differences.

Multiple imputation was carried out using the 'mice' package in the statistical programme R version 3.1.1 (Van Buuren and Groothuis-Oudshoorn, 2011). The number of imputed datasets was set at five. The imputation model was made up of all demographic control variables and independent variables (risk factors). Predictive mean matching was used to ensure that non-existing/impossible values (for example negative values) were not imputed. Delinquency variables were imputed individually – that is, each of the 48 listed offences was imputed – before creating the arrestable offending variable post imputation. Imputing the raw variables before transforming them is generally accepted to be the best solution (Van Buuren, 2012). Convergence was examined, with plots indicating that 10 iterations were sufficient to achieve convergence. On the subsequent analysis, pooling of parameters was carried out in SPSS by identifying the dataset as imputed.

The results of analysis carried out on the dataset using listwise deletion were similar to those presented in the paper. Any differences that were present indicated that a greater number of effects were found to be significant using listwise deletion than using multiple imputation, but that these significant effects had odds ratios of less than 2 and in most cases less than 1. In addition, odds ratios for effects found significant using both methods were generally smaller using listwise deletion than using multiple imputation.